

II. REMARKS

A. State of the Claims

Claims 1-35 were pending at the time of the Action. Claims 1-33 and 35 have been amended in the Amendment submitted herewith. No new matter has been added by these amendments. Therefore, claims 1-35 are currently pending.

B. Objection to the Abstract

The Action objected to the previous Abstract, based on the inclusion of the expression “the present invention provides for,” in the Abstract. To overcome this objection a new Abstract is submitted herewith.

C. Objections to the Claims and Rejections to the Claims Under 35 U.S.C. § 112, Second Paragraph

The Action raised numerous objections and rejections to the claims, stating that various terms and expressions caused indefiniteness or ambiguity, which lack antecedents, and did not comply with formal requirements. Applicants disagree with this characterization of the previous claims. However, to overcome the objections and rejections and advance substantive prosecution of the claims, the current set of claims incorporates language that is believed to be in accordance with the Examiner’s suggestions to address each of the issues raised. The amended claims do not contain any new matter and overcome all of the Action’s corresponding objections. In one exception, the Examiner is requested to note that the expression “the same as” has been retained in claims 1, 15, 16 and 30. This contrasts with the Examiner’s suggestion to replace the expression “the same as” with “similar to.” This is because the generated and received data

packages should correspond in order for advantages of increased safety to be realized by the claimed invention.

The Examiner is thanked for his suggestions in regard to these matters. In view of the above, Applicant's respectfully submit that the outstanding objections and rejections under 35 U.S.C. §112, second paragraph, have been overcome.

D. Rejections to the Claims Under 35 U.S.C. §§ 102 and 103

The Action rejects claims 1–35 as anticipated by or obvious over U. S. Patent 5,014,622 to Jullian. Applicants traverse.

Independent apparatus claim 1 and corresponding independent method claims 16 and 30 each pertain to embodiments of the invention that incorporate the use of one or more authorization keys to improve the safety of the blasting system as previously described. For example, each of these claims indicates that the currently claimed invention employs the use of at least one “data package comprising a randomly generated access code” in a specified manner. Such data packages and their uses are neither taught nor suggested by the Jullian reference.

In the presently claimed invention, the at least one blasting machine internally generates the random access code for transfer onto a temporary storage media in the form of the authorization key. This key is taken back to the central command station for physical association therewith. At this time, the data package is transferred to the central command station, and subsequently the central command station transmits command signals together with the data package back to the at least one blasting machine. Each blasting machine compares an originally generated data package and the data package received from the central command station and only responds to the command signals if the two data packages correspond. This type of system significantly contributes to the safety of the blasting arrangement and is not disclosed or

contemplated by Jullian. This represents an important advancement in this technology, which is neither taught nor suggested by the Jullian reference.

Additionally, in regard to the present invention, the operator of the blasting system physically visits each blasting machine to physically transfer each corresponding authorization key back to the central command station and away from the blast site in order for the blasting operation to be effected. This has the effect that the operator must clear the blast site prior to initiation of the blasting event, and failure to transfer the authorization keys will prevent the blast event from occurring. Importantly, accidental actuation of the connected detonators by reason of inadvertent or illicit interference of the blasting machines at the blasting site is substantially prevented. The Jullian reference does not provide this level of safety in the blasting system because the blasting machines are not set up to generate, receive and compare data packages comprising random access codes.

The Action employs an erroneous interpretation of the Jullian reference, in suggesting that the blasting galvanometer 18 disclosed in the Jullian reference is the same as the authorization key encompassed by the apparatuses and methods of the present invention. This is not the case. The blasting galvanometer 18 of the Jullian reference is capable of connection to and direct communication with both the blasting caps and the blasting machine. Moreover, the blasting galvanometer is capable of retaining and transferring complex programming information to the blasting caps and conveying this information to the blasting machine.

The Action is further erroneous in suggesting that column 13, line 40, of the Jullian reference discloses means for comparing generated and received data packages. Such means form an integral part of each blasting cap in Jullian, which directly contrasts with the presently

claimed invention in which data packages are generated by, received by, and compared by each blasting machine.

In view of the failure of Jullian to teach all of the elements of the present claims, the instant claims are novel over that reference. Additionally, Jullian's failure to teach or suggest all of the elements of the claims, especially coupled with the failure of the reference to motivate those of skill to make the claimed invention or have a reasonable expectation of success in practicing the invention means that that reference cannot render the present claims obvious. In view of the above, independent claims 1, 16, and 30, are allowable over the cited art and, therefore, all of their dependent claims are also allowable.

E. Conclusion

Applicants believe that this response places all of the pending claims in condition for allowance pursuant to the statements in the Action, and favorable reconsideration is respectfully requested.

Should the Examiner have any questions or comments, he is respectfully requested to contact Applicants' representative at (512) 536-3035.

Respectfully submitted,



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